

CLAIMS

What I claim is:

- 1 1. A portable communication device comprising:
  - 2 at least one processor coupled to at least one transceiver; and
  - 3 an identity module removeably coupled to the processor, wherein information of
  - 4 the identity module controls operation of the device, wherein the processor receives
  - 5 binding information including identification information from components of the device
  - 6 and subscriber information from the identity module, forms an association between the
  - 7 device and the module by assigning a device identification (DID) to the binding
  - 8 information, generates at least one binding file in a memory area of the module, and
  - 9 stores the device identification and the binding information in the binding file.
- 1 2. The device of claim 1, wherein the identity module is at least one of a Subscriber
- 2 Identity Module (SIM), a SIM card, a User Identity Module (UIM), a UIM card, a digital
- 3 data storage device, a smart card, a compact flash memory device, and a portable
- 4 memory device.
- 1 3. The device of claim 1, wherein the identification information includes at least one
- 2 of an International Mobile Equipment Identity (IMEI), a Type Approval Code (TAC), a
- 3 Final Assembly Code (FAC), a Serial Number (SNR), an Electronic Serial Number
- 4 (ESN), an embedded digital signature, a device model, information of a software version
- 5 of the portable communication device, and configuration information of the portable
- 6 communication device.
- 1 4. The device of claim 1, wherein the memory area of the module includes a non-
- 2 volatile memory.
- 1 5. The device of claim 1, wherein the device is at least one of personal computers,
- 2 portable computing devices, cellular telephones, portable telephones, portable
- 3 communication devices, and personal digital assistants.

1       6.     A communication device comprising a control subsystem that forms an electronic  
2 linkage between the device and a removeably coupled identity module, wherein the  
3 control subsystem reads identification information of the components and the identity  
4 module and, in response, dynamically links the device to the identity module by writing  
5 the identification information to a binding file of the identity module along with an  
6 assigned device identification corresponding to the device and identity module  
7 combination, wherein information of the binding file controls subsequent activation and  
8 operation of the device in a communication network.

1       7.     A portable communication device comprising:  
2           means for receiving identification information from components of the device;  
3           means for receiving subscriber information from a module removeably coupled to  
4 the device;  
5           means for electronically associating the device with the module by assigning a  
6 device identification (DID) to binding information including the identification  
7 information and the subscriber information; and  
8           means for generating a binding file in a memory area of the module and storing  
9 the device identification and the binding information in the binding file.

1       8.     A communications system comprising:  
2           a communications network including a plurality of network components; and  
3           at least one personal communication device coupled to the network for use by  
4 subscribers in transmitting and receiving information, the communication device  
5 including at least one processor coupled among at least one transceiver and a removeable  
6 identity module so that information of the identity module controls operation of the  
7 communication device, wherein the processor receives binding information including  
8 identification information from components of the communication device and subscriber  
9 information from the identity module and transmits the binding information to the  
10 network components, wherein the processor receives a device identification (DID) from  
11 the network components and dynamically binds the communication device with the  
12 identity module by generating at least one binding file in a memory area of the identity

13 module and storing the device identification along with the associated binding  
14 information in the binding file.

1 9. The system of claim 8, wherein the processor is further configured to:  
2 determine if the communication device and the identity module are registered to  
3 provide service on the communications network by comparing the subscriber information  
4 with the binding information;  
5 in response to a determination that the communication device and the identity  
6 module are registered, activating the communication device and the identity module  
7 using information of the binding file; and  
8 in response to a determination that at least one of the communication device and  
9 the identity module are not registered, registering at least one of the communication  
10 device and the identity module and generating a binding among the communication  
11 device and the identity module by associating a device identification with the  
12 identification information and the subscriber information, and storing the device  
13 identification, the identification information, and the subscriber information in the  
14 binding file.

1 10. The system of claim 8, further comprising a data stream including the binding  
2 information, wherein the data stream is generated by the communication device and  
3 transmitted to at least one of the network components via at least one coupling between  
4 the communication device and the network components.

1 11. The system of claim 8, wherein the coupling among the network components and  
2 the personal communication device is at least one of wireless connections, wired  
3 connections, and hybrid wireless/wired connections.

1 12. The system of claim 8, wherein the communications network includes local area  
2 networks (LANs), metropolitan area networks (MANs), wide area networks (WANs),  
3 proprietary networks, backend networks, and the Internet.

1       13.    A method for forming dynamic associations among portable modules and portable  
2    communication devices, comprising:

3            receiving identification information from at least one component of a portable  
4    communication device;

5            receiving identification information from a portable module coupled to the  
6    portable communication device;

7            assigning a device identification to the association between the portable module  
8    and the portable communication device;

9            generating a binding state file in a memory area of the portable module; and

10           storing the device identification and the identification information of the portable  
11    module and the portable communication device in the binding state file.

1       14.    The method of claim 13, further comprising determining if the portable  
2    communication device and the coupled portable module are registered to provide service  
3    on a communications network.

1       15.    The method of claim 14, wherein the determination includes determining whether  
2    an embedded digital signature is stored in the components of the portable communication  
3    device.

1       16.    The method of claim 14, wherein the determination includes comparing the  
2    identification information of the portable module with information of the binding state  
3    file.

1       17.    The method of claim 14, further comprising registering the portable  
2    communication device to provide service on the communications network when it is not  
3    registered to provide service, wherein registration of the portable communication device  
4    includes providing an embedded digital signature to components of the communications  
5    network and using the embedded digital signature to activate subscriber services to the  
6    portable communication device.

1 18. The method of claim 14, further comprising re-registering the portable  
2 communication device to provide service on the communications network with the  
3 coupled portable module when the portable communication device is registered with the  
4 communication network and there is an absence of data of an association between the  
5 portable communication device and the coupled portable module.

1 19. The method of claim 13, further comprising:  
2 generating a data stream in the portable communication device, the data stream  
3 including the identification information of the portable module and the portable  
4 communication device;  
5 transferring the data stream to at least one server via at least one coupling with the  
6 server; and  
7 in response to assigning a device identification to the association, transferring the  
8 device identification to the portable communication device.

1 20. The method of claim 13, wherein a component of the portable communication  
2 device assigns the device identification to the association, where the device identification  
3 is transmitted to at least one server via at least one coupling with the server.

1 21. The method of claim 13, further comprising:  
2 receiving identification information from at least one component of a first  
3 portable communication device;  
4 receiving identification information from a portable module coupled to the first  
5 portable communication device;  
6 assigning a first device identification to the association between the portable  
7 module and the first portable communication device;  
8 generating a first binding state file in a memory area of the portable module; and  
9 storing the first device identification and the identification information of the  
10 portable module and the first portable communication device in the first binding state file.

1 22. The method of claim 21, further comprising:

2                   transferring the portable module from the first portable communication device to  
3                   a second portable communication device;  
4                   receiving identification information from at least one component of the second  
5                   portable communication device;  
6                   receiving identification information from the portable module;  
7                   assigning a second device identification to the association between the portable  
8                   module and the second portable communication device;  
9                   generating a second binding state file in the memory area of the portable module;  
10                  and  
11                  storing the second device identification and the identification information of the  
12                  portable module and the second portable communication device in the second binding  
13                  state file.

1   23.   The method of claim 13, wherein the portable module is at least one of a  
2   Subscriber Identity Module (SIM), a SIM card, a User Identity Module (UIM), a UIM  
3   card, a digital data storage device, a smart card, a compact flash memory device, and a  
4   portable memory device.

1   24.   The method of claim 13, wherein the identification information of the portable  
2   communication device includes at least one of an International Mobile Equipment  
3   Identity (IMEI), a Type Approval Code (TAC), a Final Assembly Code (FAC), a Serial  
4   Number (SNR), an Electronic Serial Number (ESN), an embedded digital signature, a  
5   device model, information of a software version of the portable communication device,  
6   and configuration information of the portable communication device.

1   25.   The method of claim 13, wherein the identification information of the portable  
2   module includes at least one of an International Mobile Subscriber Identity (IMSI), a  
3   Mobile Country Code (MCC), a Mobile Network Code (MNC), a Mobile Station  
4   Identification Number (MSIN), a Mobile Station International Integrated Service Digital  
5   Network (ISDN) Number (MSISDN), a Number Assignment Module (NAM), and  
6   information of a subscriber.

1    26.    A method for controlling operation of a portable communication device with a  
2    communication network, comprising:  
3            receiving identification information from components of the device and  
4    subscriber information from at least one memory card in response to placing the device in  
5    an operational state, wherein the memory card is removeably coupled to the components;  
6            determining if at least one of the device and the memory card are registered to  
7    provide service on the communication network by comparing the subscriber information  
8    with information of a binding file of the memory card;  
9            in response to a determination that the device and the memory card are registered,  
10   activating the device and the memory card using information of the binding file; and  
11            in response to a determination that at least one of the device and the memory card  
12   are not registered, registering at least one of the device and the memory card and  
13   generating a binding among the device and the memory card by associating a device  
14   identification with the identification information and the subscriber information, and  
15   storing the device identification, the identification information, and the subscriber  
16   information in the binding file.

1    27.    The method of claim 26, wherein registering at least one of the device and the  
2    memory card includes initially registering the device, wherein initial registration of the  
3    device comprises:  
4            reading an embedded digital signature from the components of the device;  
5            transmitting the embedded digital signature to the communication network; and  
6            activating subscriber services to the device and assigning the device identification  
7    to a combination of the device and the coupled memory card in response to receiving the  
8    embedded digital signature.

1    28.    The method of claim 26, wherein registering at least one of the device and the  
2    memory card includes re-registering the device, wherein re-registration of the device  
3    comprises:

4 activating subscriber services to the device in response to receipt of the  
5 identification information from a registered device and the subscriber information of an  
6 unregistered memory card; and

7 assigning the device identification to a combination of a registered device and an  
8 unregistered memory card coupled to the registered device.

1 29. The method of claim 26, wherein a binding between a first device and the  
2 memory card is associated with information of a first memory area of the binding file,  
3 wherein a binding between a second device and the memory card is associated with  
4 information of a second memory area of the binding file.

1 30. A computer readable medium including executable instructions which, when  
2 executed in a processing system, dynamically forms bindings between a portable module  
3 and portable communication devices by:

4 receiving identification information from at least one component of a portable  
5 communication device;

6 receiving identification information from a portable module coupled to the  
7 portable communication device;

8 assigning a device identification to the association between the portable module  
9 and the portable communication device;

10 generating a binding state file in a memory area of the portable module; and

11 storing the device identification and the identification information of the portable  
12 module and the portable communication device in the binding state file.